

Exploiting Distant Learning as a Portal (Among Minority Institutions) to Emerging Technologies

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Abstract

Grambling State University (GSU), in retrospect, has had its share of the painful demise of other minority institutions - that of involuntary deprivation of access to equal opportunities in select technological resources. The unfortunate result has been a progressively widening technological gap forged not along sheer aptitude, as would be expected, but rather predominantly along cultural contrivances. More unfortunate, perhaps, is the vast un-tapped repository of, rarely-exploited, talents and enduring persistence to be found in these camps.

Our present civilization is resting on the threshold of the portals of unfathomable technological breakthroughs and opportunities. Computer technology - especially networking and parallel distributed processing, for example, are spearheading the migration from our traditionally formal classroom pedagogies to more liberal alternatives to better embrace new or emerging technologies and the resulting prolific problem solving paradigms and capabilities that come with them. For once, even previously underprivileged institutions stand equal chances of leveraging their strengths and creativity in shaping the trends of these emerging technologies. GSU's experience with interactive telecasting (partly through the DoD's HPCMP/PET* initiative) is rich and replete with what is perceived to mirror the kind of productive partnership envisaged between tribal and non-Indian institutions for effective participation in the NASA Science and Technology initiatives of the future.

Introduction

One of the prominent benefits of the advent of telecommunication was the undoing of the geographical and ideological barriers that characterized the cultures of the world as we knew them then. Granted that those barriers, legally, do no longer exist but the disparate rate at which minorities were granted access to these technologies, beginning with the telephone, the television and, now, computer technology, has resulted in an undeniable technological gap which will continue to be an enigma to the latter group. This fact is supported by a recent study conducted by some University of Maryland scholars in which they noted the lingering long term hurt of a racial divide on minorities [1]. It is further supported by some recent, highly profiled, speeches or rhetoric by key government officials on the digital divide and its potential effects on minorities [2 - 4].

The Digital & Economic Divide

The studies and speeches alluded to above all attest to the fact that our capitalistic society, though promoting the notion of equal opportunities for all, is riddled over and over, in practice, with the dilemma of bridging the gaps resulting from previous malpractices of unfair deprivation of access to basic amenities. The unfortunate evidence of this dilemma, even amid a prodigious economic and technological growth, is the involuntary widening rather than narrowing of the economic and technological gap with the affluent getting more affluent and the destitute getting even more so.

These could be said to be particularly exciting times. New or emerging technologies, especially in parallel and distributed computing, are redefining the landscape of the way we solve problems and, similarly, the process of formulation and introducing such technologies. Due to the exorbitant cost of pioneering new technologies only the technologically or economically privileged institutions will frequently be among the favored to receive the cream of the cash to research these emerging technologies. The under-privileged institutions are perceived, on the other hand, to be a real liability or big risk often not worth taking. From the perspective of a privileged institution it makes every sense to maintain a clear divide and distinction between the institutions.

A primary motivation for the digital divide, therefore, can be shown to be economic and thus the estrangement of the rhetoric already alluded to. A case in point is the recent White House initiative and funding for the collaborative research, specification and design of internet II - the next generation of the ubiquitous network of networks. Of the institutions selected for funding for this research, there is no minority or tribal institution. The actions of the government, therefore, are inconsistent with their rhetoric and there does not appear to be any real concerted effort to bridge the technological gap.

The one thing that could be worse than the foregoing, perhaps, is when a privileged institution, trying to make room for new state-of-the-art equipment, occasionally offloads its mundane equipment stock pile (in a typically well publicized act of charity) to an under-privileged institution. Admittedly the intention is frequently to bridge or narrow the technological gap between the former and the latter. In practice, however, such acts of charity do not narrow but rather further broaden the gap because the creative energies of the recipient(s) are now removed from more innovative pursuits to focus on often futile attempts to tinker with obsolete equipment that the donor(s) had probably, themselves, given up on.

A Winning Strategy for Tribal & Minority Institutions

To better prepare to embrace the new or emergent technologies new alliances are needed among minority and tribal institutions. Not necessarily with privileged institutions in which the former will always be considered a parasite but rather with any one with whom they can leverage mutual strengths. It is considered futile to re-invent the wheel but it is considered innovative to leverage the efforts of the inventor of the wheel to further advance the state of the technology. New sources of funding must be sought not as under-dogs to some other institution(s) but rather as mutual partners whose strategic accomplishments depend on the synergy resulting from the collective strengths of all involved. The emphasis must be on these strengths (what the one can contribute) rather than status (what one used to be).

The Virtual Classroom

The current technological proliferation has liberated our traditional classroom pedagogy from the practice of confinement and protectionism to a service-oriented one that knows little or no bounds. To achieve the mutual collaboration dictated by the new economies of scale of computing as well as the widely cherished distributed processing paradigm, distant learning promises to be a very effective and

non-intimidating tool. Since the medium is completely voluntary, contributors are esteemed for the quality and usefulness of their contribution rather than status. Better still, there is no reason to be inhibited by a fear of losing one's privileged status. The privileged and under-privileged alike have a lot to contribute in this medium and thus can forge new alliances.

GSU's Experience

GSU has now been involved with the DoD's HPCMP/PET project for two and a half years. The goals of this project are: (a). To upgrade the present DoD's computing infrastructure located at various major shared resource centers, to support the warfighter, by an order of magnitude over the five year duration of the of the project. (b). Develop new problem solving techniques to exploit that computing power to command a decisive global supremacy. (c). To develop training programs to disseminate the new techniques and tools to all participants and users alike.

GSU, which would otherwise be estranged to the current emerging technologies, has instead benefited from a formal distant learning program thanks to the third goal above. Although this report does not cover the technical design and implementation of a distant learning production and delivery facility, ample references [5] to authoritative sources of such information exist. GSU's own distant learning production facility is quite primitive but effective for the scope of its designated goal.

A tool that might become very useful in the future for a broader scale distant learning effort is one developed at Syracuse University under the auspices of the PET program. Syracuse's distant learning package centers around a proprietary tool called Tango and has been widely tested at Jackson State University. The latter product, unfortunately, limits distant learning to a mere production and packaging of lectures to be viewed (off-line) using a number of media [6]. Effective learning, in our view, has always been interactive and nothing short of that will even begin to bridge any technological gaps between participants. Microsoft is also developing proprietary tools to make distant learning a common practice, hopefully, in the future [7].

Conclusion

In the wake of the advent of exciting emerging technologies previously under-privileged institutions must plan their strategies carefully in order to have a role in shaping the new technologies. Any viable strategy must leverage the formidable strengths, which have laid dormant and un-exploited in the past, of these institutions. New sources of funding must emphasize the free expression of such suppressed talents rather than foster the existing technological divide resulting from a skewed view of potential contributions to new technologies.

References

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